

UNC  **aaps**[®]
**American Association of
Pharmaceutical Scientists**

AAPS INTRODUCTORY MEETING

8/31/17

- 12:05 - Start and introduce AAPS
- 12:15 - Nick Klus CBMC
- 12:22 - Shaye Hagler DPMP
- 12:29 - Erin Burgunder DPET
- 12:36 - Nirosha Mahendraratnam DPOP
- 12:43 - Quan Jin PharmD
- 12:50 – Discuss future events and close

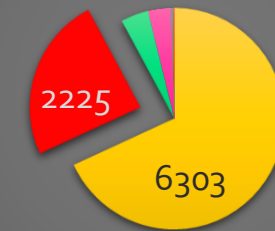
WHAT IS AAPS?



**American Association of
Pharmaceutical Scientists**

- American Association of Pharmaceutical Scientists
- International, professional, scientific society
- More than 12,000 members employed in
 - academia
 - industry
 - government
 - other research institutes worldwide
- Founded in 1986, AAPS provides a dynamic international forum for the exchange of knowledge among scientists to enhance their contributions to health. AAPS offers timely scientific programs, ongoing education, opportunities for networking, and professional development.

Student/PostDoc Membership comprise
25% of all AAPS Membership



■ Regular Members ■ Student/Postdoc Members

OVER 100 AAPS STUDENT CHAPTERS ACROSS THE WORLD



AAPS Mission and Vision

Mission

AAPS advances the capacity of pharmaceutical scientists to develop products and therapies that improve global health.

Vision

AAPS will advance the pharmaceutical sciences to drive prevention and cures.

Core Values

- ▶ Learning
- ▶ Innovation
- ▶ Service
- ▶ Inclusiveness
- ▶ Integrity

NATIONAL MEMBER BENEFITS

- a free subscription the AAPS Newsmagazine
- reduced registration fees to the AAPS Annual Meeting and Exposition
- Online full text access to AAPS' four leading scientific journals
- free access to all upcoming and archived AAPS webinars (Free professional development on a range of hot topics)
- free access to past meeting eposters, beginning with the 2012
- up-to-date information on the Industry News in pharmaceutical sciences
- networking opportunities with other leaders in pharmaceutical science
- advancing careers through employment opportunities and mentoring
- a robust awards, fellows, and travelships program



**2015: BUILDING YOUR
CAREER FOUNDATION**

CAREER SERVICES

Career Consulting
Face to Face and Virtual Career Fair
Job Board
Salary Survey & Calculator
Online Resources

KNOWLEDGE RESOURCES

Workshops
Short Courses
eCourses
Webinars
Annual Meeting and Exposition
National Biotechnology Conference

PROFESSIONAL DEVELOPMENT

Mentoring Program
Resume Reviews
Professional Development Content
Career Success Stories
Peer Visiting Scientist Program
Leadership Opportunities

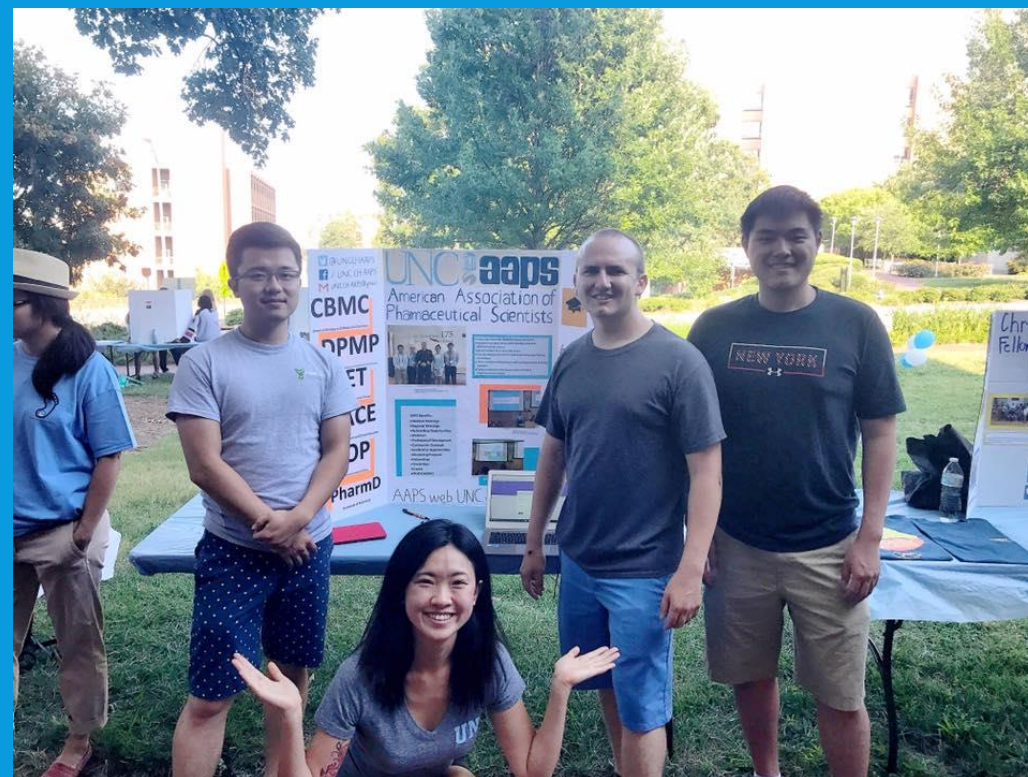
www.aaps.org/careers



DEVELOPING SCIENCE. IMPACTING HEALTH.

MEMBERSHIP

- UNC AAPS Student Chapter membership is free!
- You do not need to be a national member to attend events.
- If you are interested in national membership: \$40/yr (\$76/2yr)
 - There may be funding opportunities to help with cost.
- Officer elections at next meeting.



ELECTIONS @ SEPTEMBER MEETING

- President: Elected from the general membership of the Organization, the President will oversee and/or assist in all duties and responsibilities of other cabinet members. The president will also ensure that all requirements are met for funding by ESOP/GSO and AAPS. The President will also be responsible for advertisement of events as well as communication with the faculty and staff.
- Vice President: Elected from the general membership of the Organization, the Vice President participates in responsibilities identified by the president. The primary role of the VP will be to identify and schedule speakers from industry. They will form a committee of students from different divisions and will book the speakers for events throughout the year.
- *All elected positions will also be responsible for training their successor in these duties at the start of the following academic year.

ELECTIONS @ SEPTEMBER MEETING

- Secretary: Elected from the general membership of the Organization, the Secretary will be responsible for the regular communication with the membership as well as maintaining social media and websites, recording of minutes from all scheduled meetings as well as taking/obtaining photos during events and posting them online.
- Treasurer: Elected from the general membership of the Organization, the Treasurer will be responsible for obtaining funds for Organization activities, maintaining an accurate record of all financial transactions, and coordinating reimbursements with ESOP/GSO. The Treasurer will also be responsible for providing refreshments and awards for select meetings.
- *All elected positions will also be responsible for training their successor in these duties at the start of the following academic year.

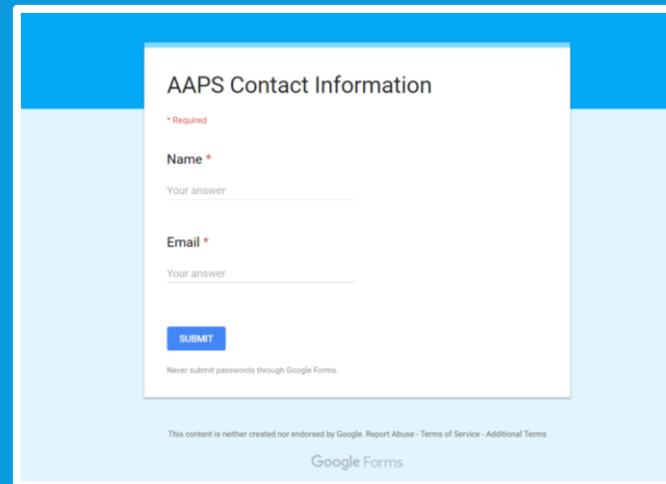
Prepare for Renewal

Due date	Renewal Period Closes	Stipends Mailed By
November 1	Dec. 15	Jan. 15

- ✓ Confirm that your chapter will have 10 paid members at time of renewal. All officers and FA must be AAPS members!
- ✓ Contact Bridget in Membership Dept. ***this summer*** to check status of having 10 paid AAPS members
- ✓ Don't wait until last minute! NO stipend if renewal documents are not complete by Dec. 15

INTERESTED IN BEING AN OFFICER?

- You must be a National Member in order to be an officer.
- Sign up for our listserv
 - AAPS.web.UNC.edu → Connect → [Contact Information Form](#)



The image shows a screenshot of a Google Form titled "AAPS Contact Information". The form is set against a light blue background. It contains two required text input fields: "Name" and "Email", both marked with a red asterisk. Below each field is a placeholder text "Your answer". A blue "SUBMIT" button is located below the "Email" field. At the bottom of the form, there is a small disclaimer: "This content is neither created nor endorsed by Google. Report Abuse - Terms of Service - Additional Terms" and the "Google Forms" logo.

- Send your intent and which position you'd like to run for to unc.ch.aaps@gmail.com by September 21, 2017.



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SCHOOL OF PHARMACY

American Association of Pharmaceutical Scientists Conference

AAPS conference opportunities

Each year there is a national conference

Next year's conference will be in DC

In addition to national annual meeting, there are regional meetings each focus on different aspect of pharmaceuticals development



AAPS/DDDI 2nd Regional Meeting
Evolving Strategies for Drug Candidates Optimization in a Changing Pharmaceutical Landscape
Friday August 4, 2017 (8:00 a.m. - 5:00 p.m.)
University of Maryland School of Pharmacy, Baltimore, MD

The DDDI regional meeting is a focused forum for drug discovery and preclinical scientists in the pharmaceutical field to discuss the most relevant topics in drug design and discovery and an excellent networking opportunity for attendees.

Covered Topics:

- Formulation Support in Drug Discovery
- Early Phase Drug Development and Population PK
- Transforming skillsets in early development to meet the changing NCE/NBE landscape in discovery space
- Academic collaboration and preparing for the discovery support role in industry

Who Should Attend?
Pharmaceutical professionals with expertise and interest in different areas of drug discovery, particularly:

- Medicinal Chemistry
- Discovery Biology
- Pharmacology
- Pharmacokinetics
- Pharmacodynamics and Drug Metabolism
- Pharmaceutical Sciences
- Toxicology

Keynote Speakers:

- Mike Hageman, PhD (Former Exec. Director, Bristol-Myers Squibb)
- Capt. Edward D. Bashaw, PharmD (Director, U.S. Food and Drug Administration)
- Justin Pennington, PhD (Director, Merck & Co.)

Featured Speakers:

- Vladimir Papov, PhD (Boehringer Ingelheim)
- Jonathan Philips, PhD (Toxicology Fellow, Vertex Pharmaceuticals)
- David Rodrigues, PhD (Research Fellow, Pfizer Inc.)
- Joseph Fortunak, PhD (Associate Professor, Howard University)
- Steven Fletcher, PhD (Associate Professor, University of Maryland School of Pharmacy)

Contact: Sunny Bhardwaj
Email: sunny.bhardwaj2@merck.com
Website: <http://www.aaps.org/DDDIRM17/>

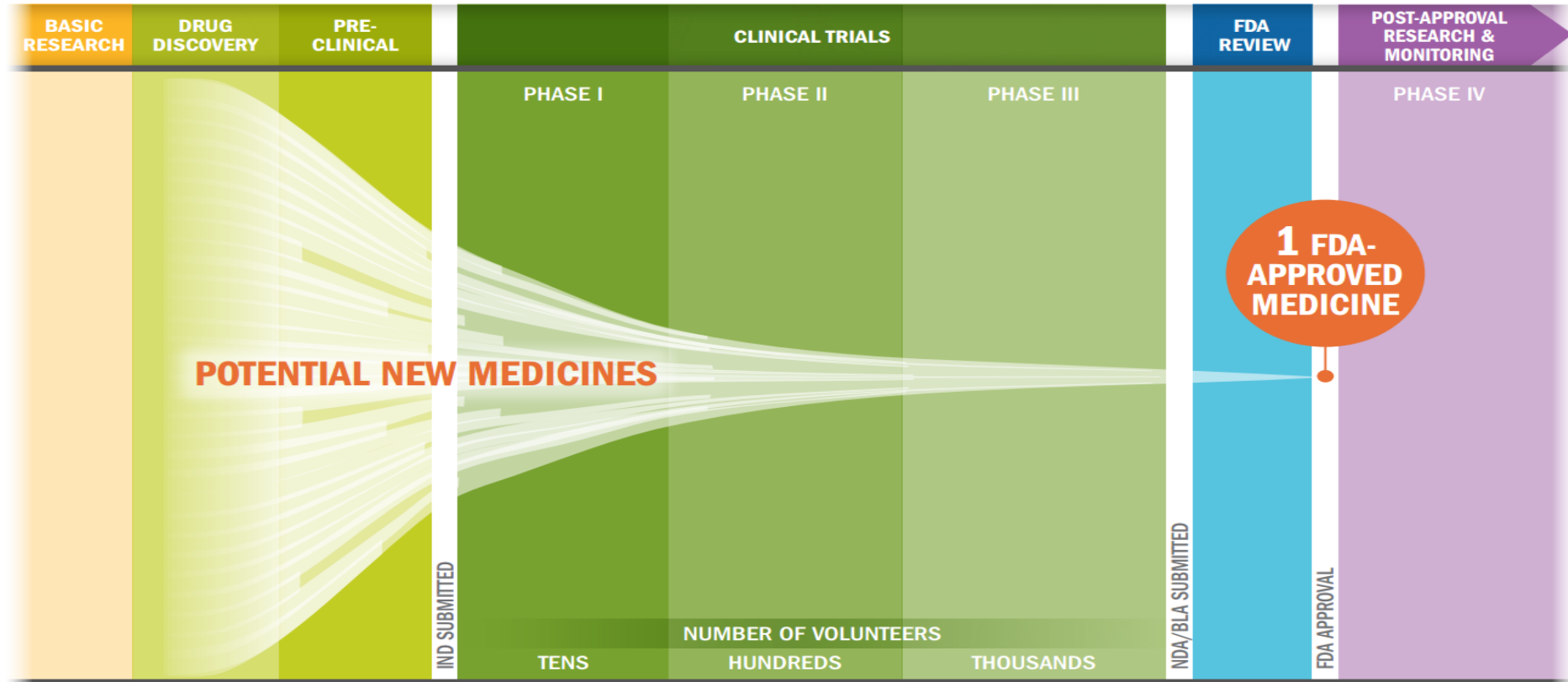
American Association of Pharmaceutical Scientists

UNIVERSITY OF MARYLAND SCHOOL OF PHARMACY



Keynote speaker, Capt Bashaw
Director, Division of Clinical Pharmacology-3 at US FDA

THE BIOPHARMACEUTICAL RESEARCH AND DEVELOPMENT PROCESS



Key: IND: Investigational New Drug Application, NDA: New Drug Application, BLA: Biologics License Application



Making Improving Understanding



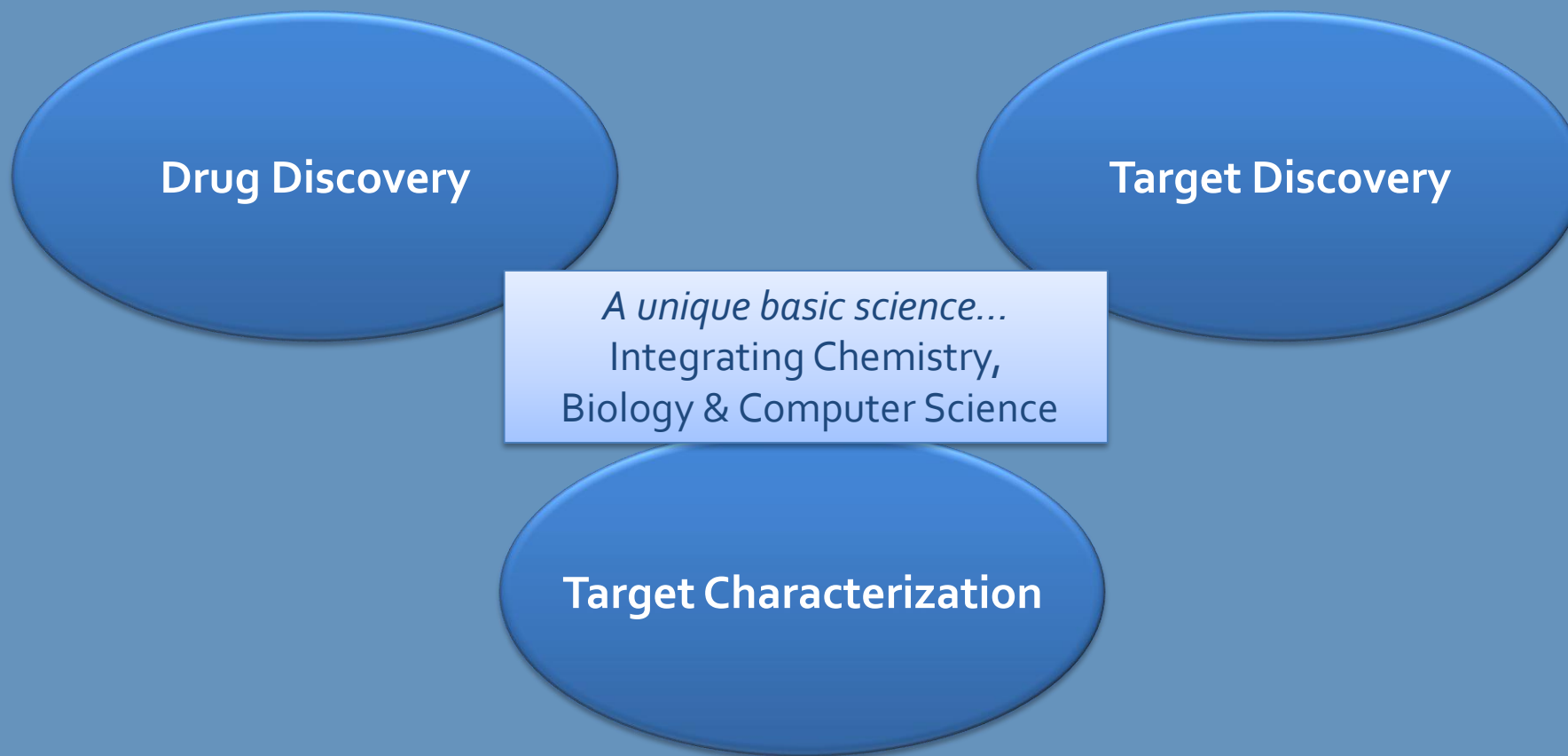
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Chemical Biology and Medicinal
Chemistry (CBMC)

Division of Chemical Biology and Medicinal Chemistry (CBMC)



Division of Chemical Biology and Medicinal Chemistry (CBMC)

- **VISION:** to improve human health through research leading to new concepts for the design and development of therapeutic and diagnostic agents.
- **Faculty**
 - 15 tenure-track
 - 20 on the research-track
 - 18 joint/adjunct faculty members
- **Research Productivity**
 - 148 grants worth more than \$48 million over the past 4 years
 - three FDA-approved drugs
 - six spin-off companies
 - several compounds in advanced phases of clinical trials

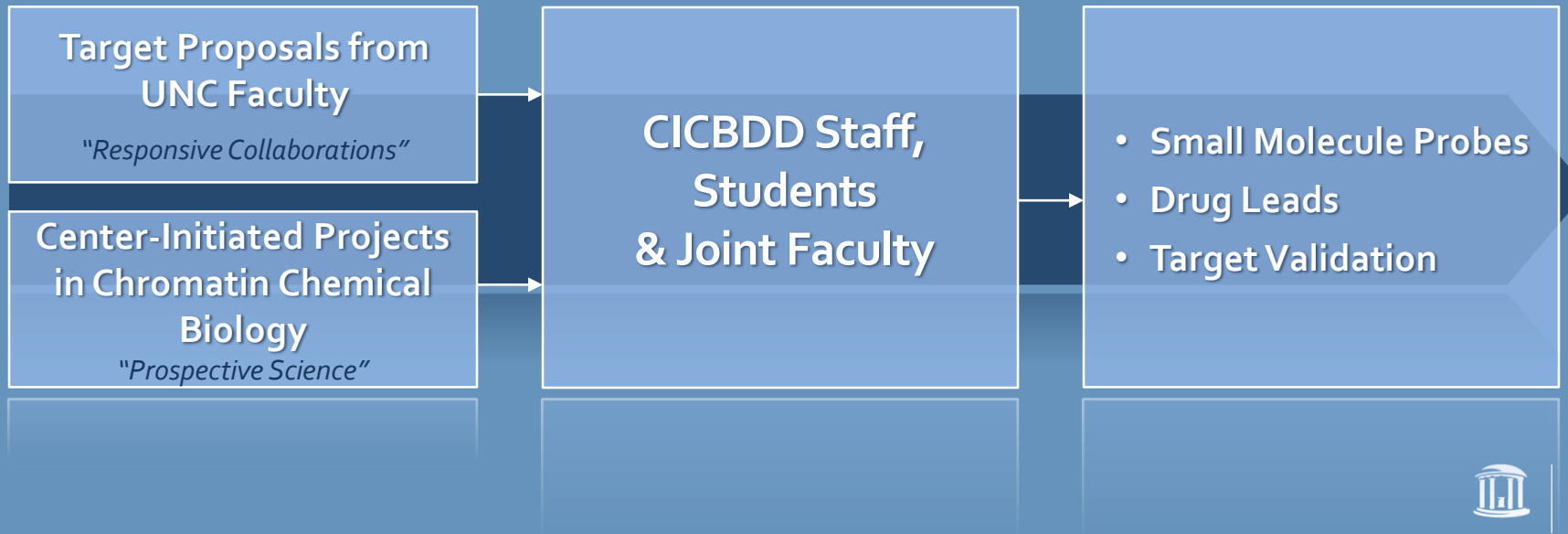
CBMC-affiliated Research Centers



Director
Stephen Frye

Center for Integrative Chemical Biology & Drug Discovery (CICBDD)

An innovative and sustainable scientific force in the creation of new small molecule therapeutics to improve public health and transform the drug discovery paradigm

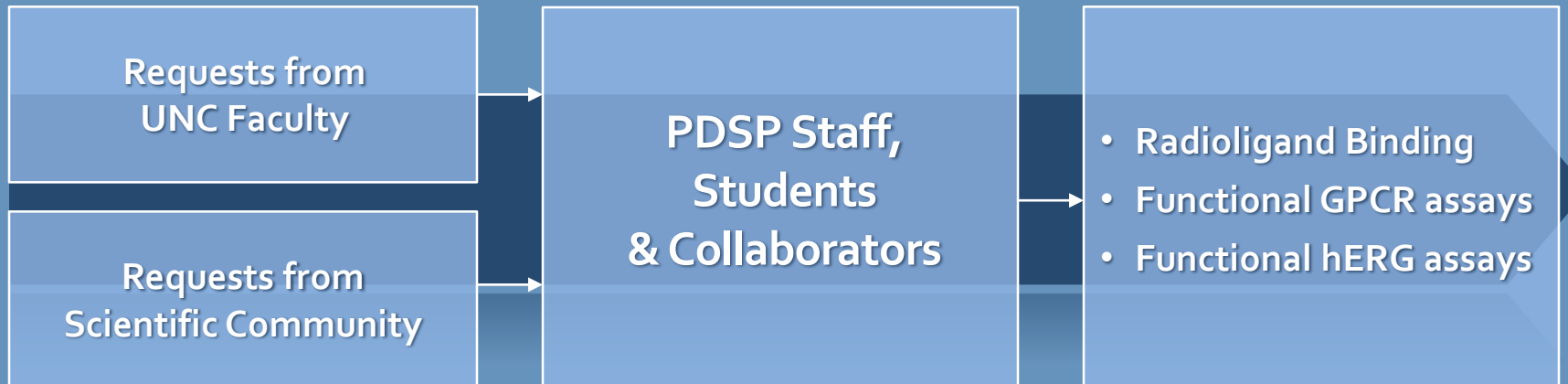


CBMC-affiliated Research Centers



NIMH Psychoactive Drug Screening Program, (PDSP)

Service provides screening of novel psychoactive compounds for pharmacological and functional activity at cloned human or rodent CNS receptors, channels, and transporters



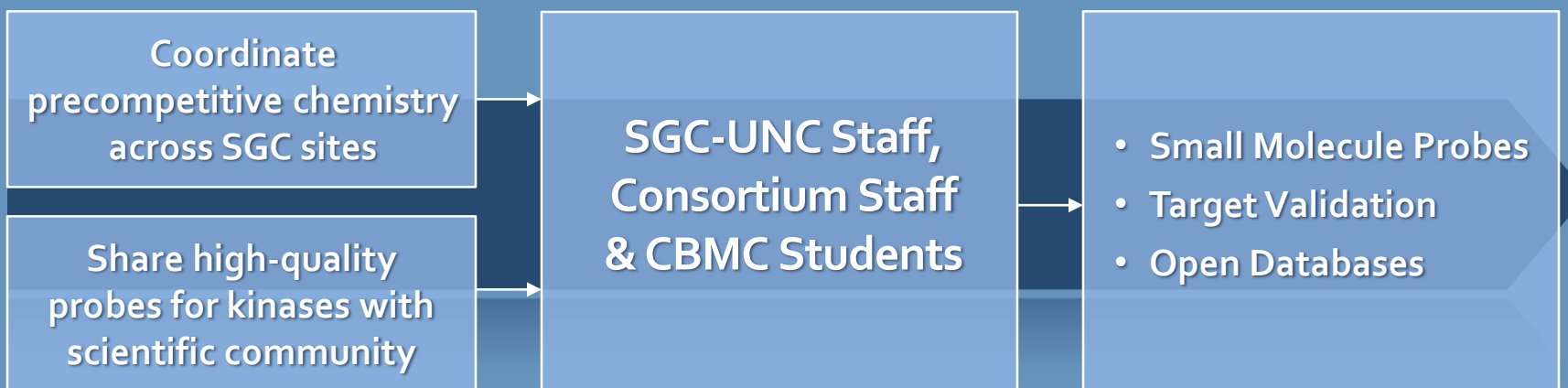
CBMC-affiliated Research Centers



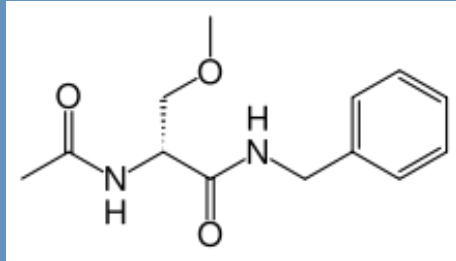
Director
Tim Willson

Structural Genomics Consortium at the University of North Carolina (SGC-UNC)

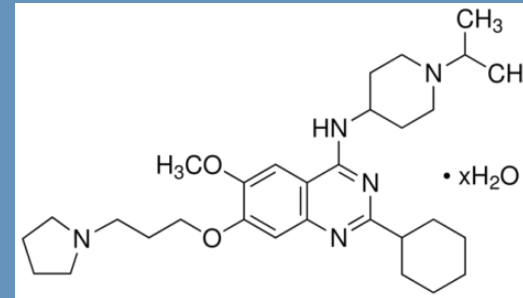
A public-private consortium aiming to expand drug discovery and help speed the creation of new medicines for patients by discovering and openly sharing selective, small molecule inhibitors of protein kinases.



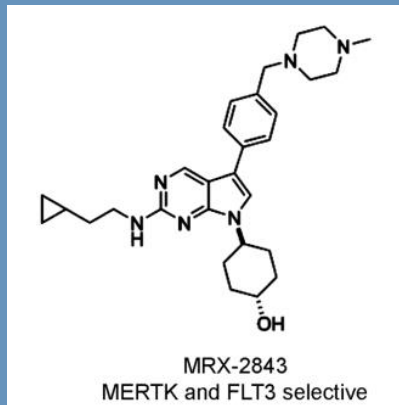
CBMC Entrepreneurial Highlights



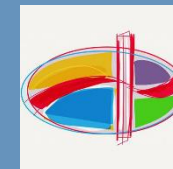
Lacosamide: FDA approved (2010) drug for epilepsy



UNCo638 hydrate: commercially (Sigma) available chemical probe for epigenetics



Phase 1
AML



Iris Biomed



Questions?
Want to learn more?

Contact:

Nick Klus

CBMC Division Representative

klusnj0@email.unc.edu



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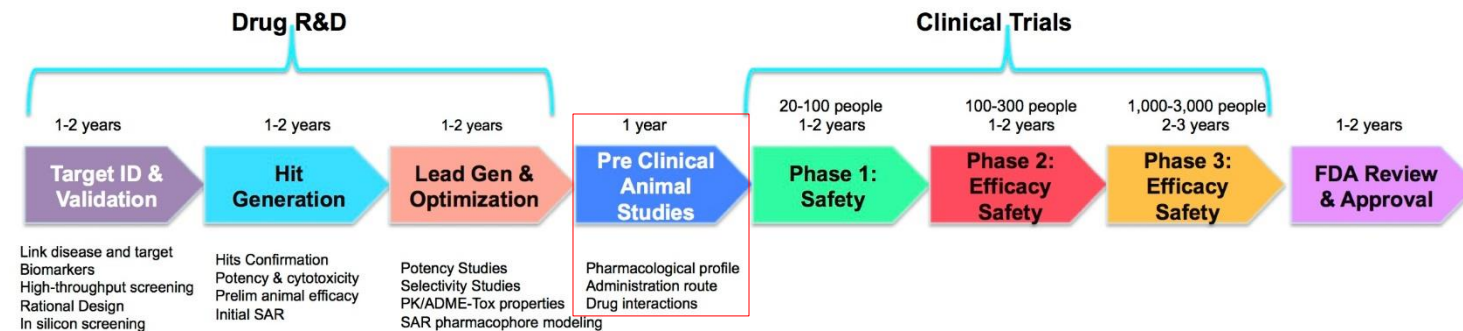
SCHOOL OF PHARMACY

Division of Pharmacoengineering
and Molecular Pharmaceutics
(DPMP)

What We Study

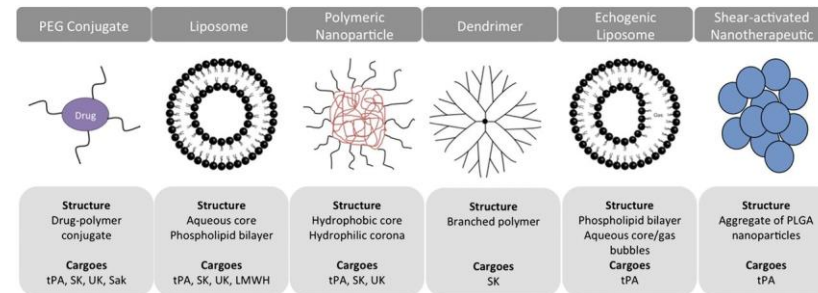
DPMP focuses on improving the efficacy and delivery of a broad range of therapeutic agents, from small molecules to biologics such as proteins, antibodies, oligonucleotides, genes, and cells.

The major goal is to engineer drug delivery systems for new therapies and vaccines intended for human use.



Pharmaceuticals and Pharmacoengineering

Drug or therapeutic agent (trade name), manufacturer(s)	Indication
Liposomal amphotericin B (AmBisome), Gilead, Fujisawa	Fungal infections
	Leishmaniasis
PEG-adenosine deaminase (Adagen), Enzon	Severe combined immunodeficiency disease
Styrene maleic acid and neocarzinostatin copolymer in Ethiodol (SMANCS/Lipiodol, Zinostatin stimalamer), Yamanouchi	Hepatocellular carcinoma
Stealth (PEG-stabilized) liposomal doxorubicin (Doxil/Caelyx), ALZA, Schering Plough	Kaposi's sarcoma
	Refractory ovarian cancer
	Refractory breast cancer
Liposomal cytosine arabinoside (DepoCyt), SkyePharma	Lymphomatous meningitis
	Neoplastic meningitis
Denileukin diftitox or interleukin 2-diphtheria toxin fusion protein (ONTAK), Seragen	Cutaneous T-cell lymphoma
Liposomal doxorubicin (Myocet), Elan	Metastatic breast cancer in combination with cyclophosphamide



DPMP at UNC

Some things we investigate:

- Nanoparticle vaccines
- Targeted cell therapy
- Pharmaceutical agents for use in nuclear medicine
- Delivery vehicles for gene therapy
- Drug formulations for microbiome modulation

And more!

Spinoff biotech companies:

- Bamboo acquired by Pfizer for \$150 million up front with up to \$495 million total in milestone payments – founded in 2014!



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Career Opportunities

Here are some recent examples of places our graduates have found work:

- Ontario Institute for Cancer Research
- Gilead
- Novartis
- NIH
- Harvard Medical School
- Genentech
- Regeneron
- Novolipid
- NIEHS
- Amgen



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Questions?
Want to learn more?

Contact:
Shaye Hagler
DPMP Division Representative
shagler@unc.edu



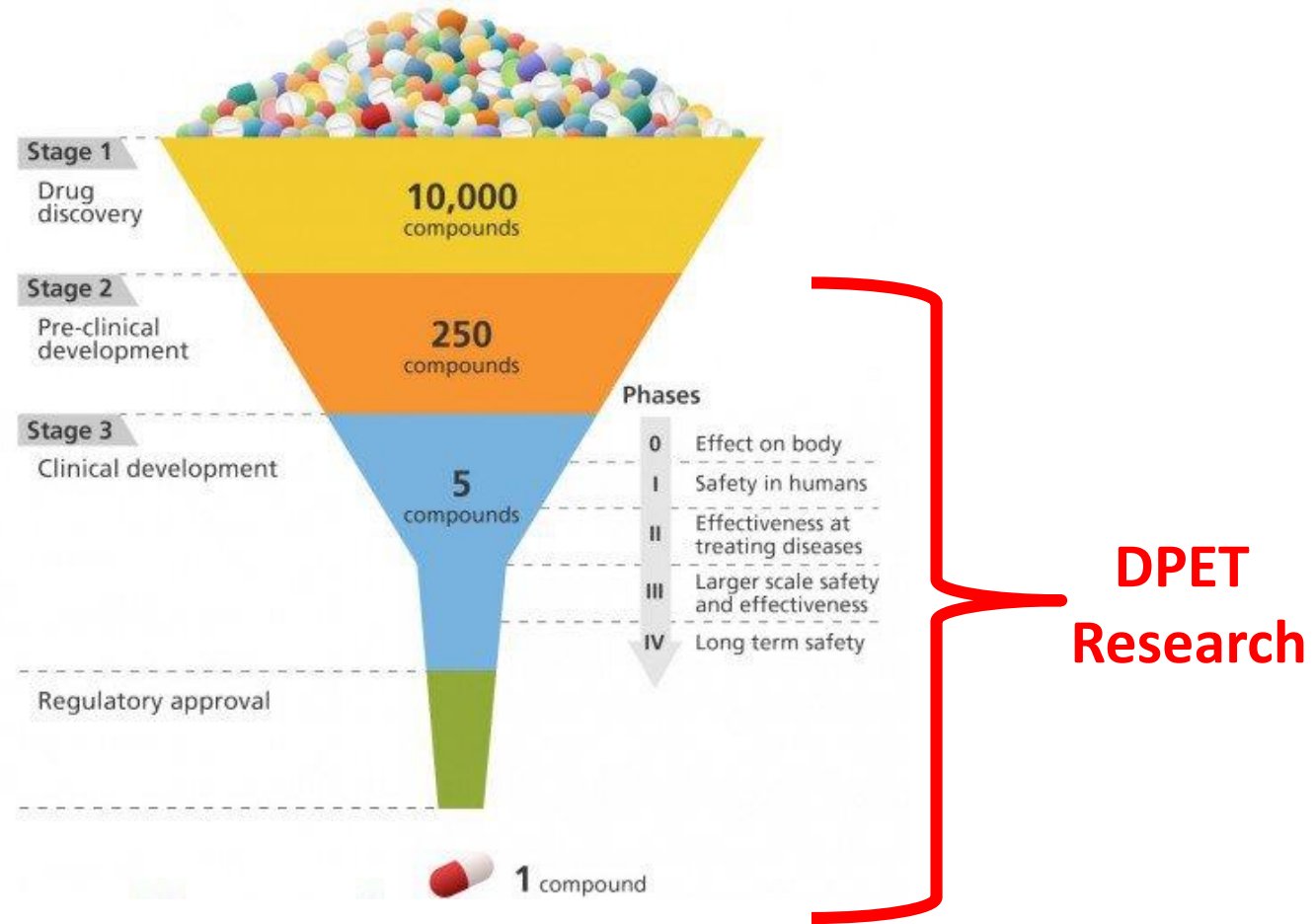
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Division of Pharmacotherapy and
Experimental Therapeutics (DPET)

Drug Approval Pipeline



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What We Do

Translational Research = “Bench to Bedside”



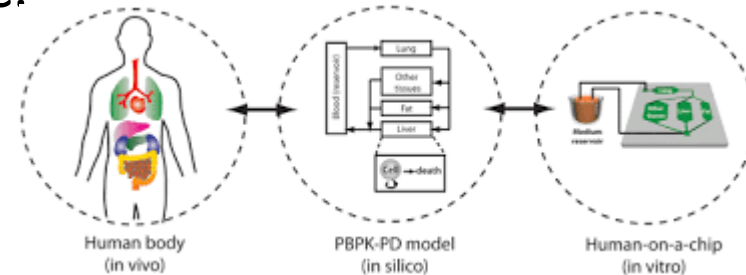
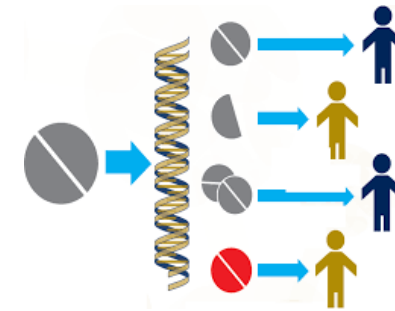
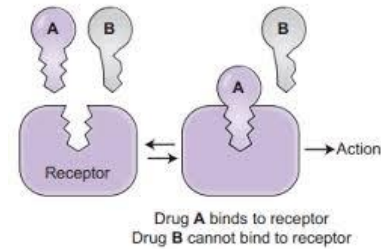
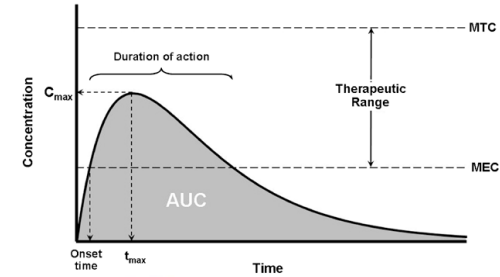
Our research involves inter-disciplinary teams of chemists, biologists, pharmacists, engineers, and computer scientists



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What We Research

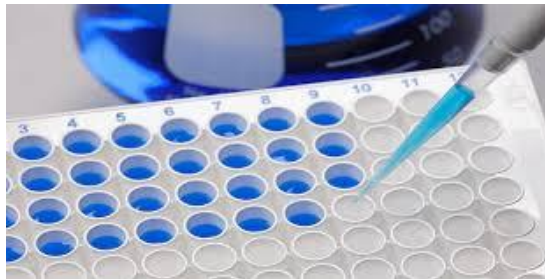
- **Pharmacokinetics:** Drug concentration achieved in various matrices: blood plasma, tissue etc.
- **Pharmacodynamics:** Relationship between drug concentration and safety/efficacy
- **Pharmacogenomics:** Studying how genetics influence drug response
- **Pharmacometrics:** use mathematical models to predict drug exposure, adverse events, etc.



Example

A Translational Pharmacology Approach to Predicting Outcomes of Preexposure Prophylaxis Against HIV in Men and Women Using Tenofovir Disoproxil Fumarate With or Without Emtricitabine

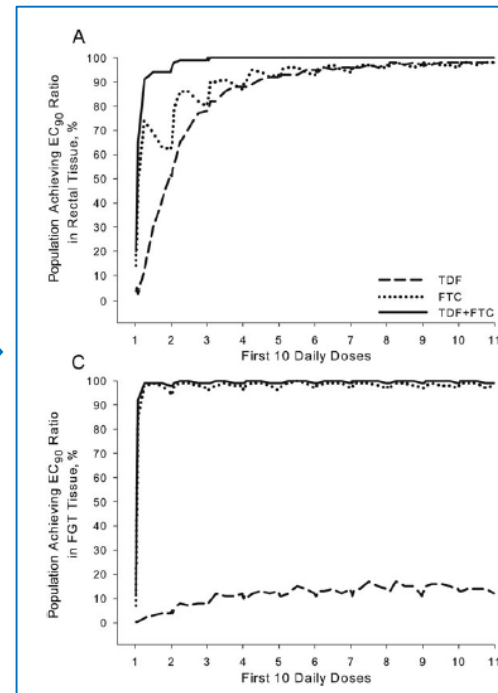
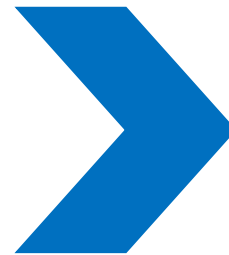
Mackenzie L. Cottrell,¹ Kuo H. Yang,² Heather M. A. Prince,³ Craig Sykes,¹ Nicole White,¹ Stephanie Malone,¹ Evan S. Dellon,³ Ryan D. Madanick,³ Nicholas J. Shaheen,³ Michael G. Hudgens,⁴ Jacob Wulff,⁴ Kristine B. Patterson,³ Julie A. E. Nelson,⁵ and Angela D. M. Kashuba¹



Pharmacodynamics



Pharmacokinetics



Pharmacometrics



“This model is predictive of recent PrEP trial results in which 2-3 doses/week was 75%-90% effective in men but ineffective in women.”

For more information, contact:

Erin Burgunder
eburg007@email.unc.edu



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Division of Pharmaceutical
Outcomes and Policy (DPOP)

What We Study

Our research is focused primarily on post-FDA approval aspects of pharmacy, including:

- Medication-related patient behavior
- Effectiveness and safety of medications in the real-world
- Cost of medications (and its impact)
- How policies affect health outcomes

**Health Outcomes Include: Clinical,
Economic, and Humanistic**



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Faculty Expertise

Health behavior and social aspects of health

- Medication adherence and interventions
- Patient-centered outcomes
- Risk communication
- mHealth and new technology to improve disease management
- Communication and decision making
- Patient education and counseling
- Health literacy
- Health disparities



Faculty Expertise

Pharmaceutical Policy and Pharmacoeconomics

- Drug pricing and affordability
- Insurance coverage and medication utilization
- Access to medications
- Public policy used to manage prescription medications
- Decision-sciences

Pharmacoepidemiology

- Medication utilization and trends
- Comparative effectiveness and safety



Our Students' Have Diverse Educational Backgrounds

- Bachelor's Degrees in Sociology, English, Public Health, Computer Science, Bioengineering, Pharmaceutical Sciences, Russian Civilization
- Master's Degrees in Sociology, Teaching, Health Policy, Public Health, Epidemiology, Pharmaceutical Sciences
- PharmD Degrees



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Our Students' Previous Experience are Varied

- Some of us come straight from undergrad, master's program, or a PharmD program
- Some of us have experience working in industry:
 - Consulting
 - Non-profit Research
 - Pharmaceutical Companies
 - Research Hospitals



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Awards and Internships

In addition to gaining substantive expertise through coursework and research, our students often gain experience through fellowships and internships.

These opportunities often come with funding, that can supplement our stipends (internships), or cover our stipends and dissertation research (fellowships).



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Awards and Internships

Recent Fellowships:

- Pharmaceutical Research and Manufacturers of America Foundation
- GSK
- Bristol Myers Squibb
- Duke Margolis Center for Health Policy
- National Research Service Awards (NRSA)
- Agency for Healthcare Research and Quality (AHRQ)

Recent Internships:

- Genentech
- Facebook
- UNC's Communication for Health Applications and Interventions (CHAI)

Core

Several Travel Awards and Research Grants



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Post-PhD Placement

Our PhD graduates go on to work in a variety of areas including industry, academia, and other research firms:

- Harvard University
- Creighton University
- RTI International
- Johnson & Johnson
- Kaiser Permanente
- UNC School of Medicine
- Community Care of North Carolina



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Questions?
Want to learn more?

Contact:

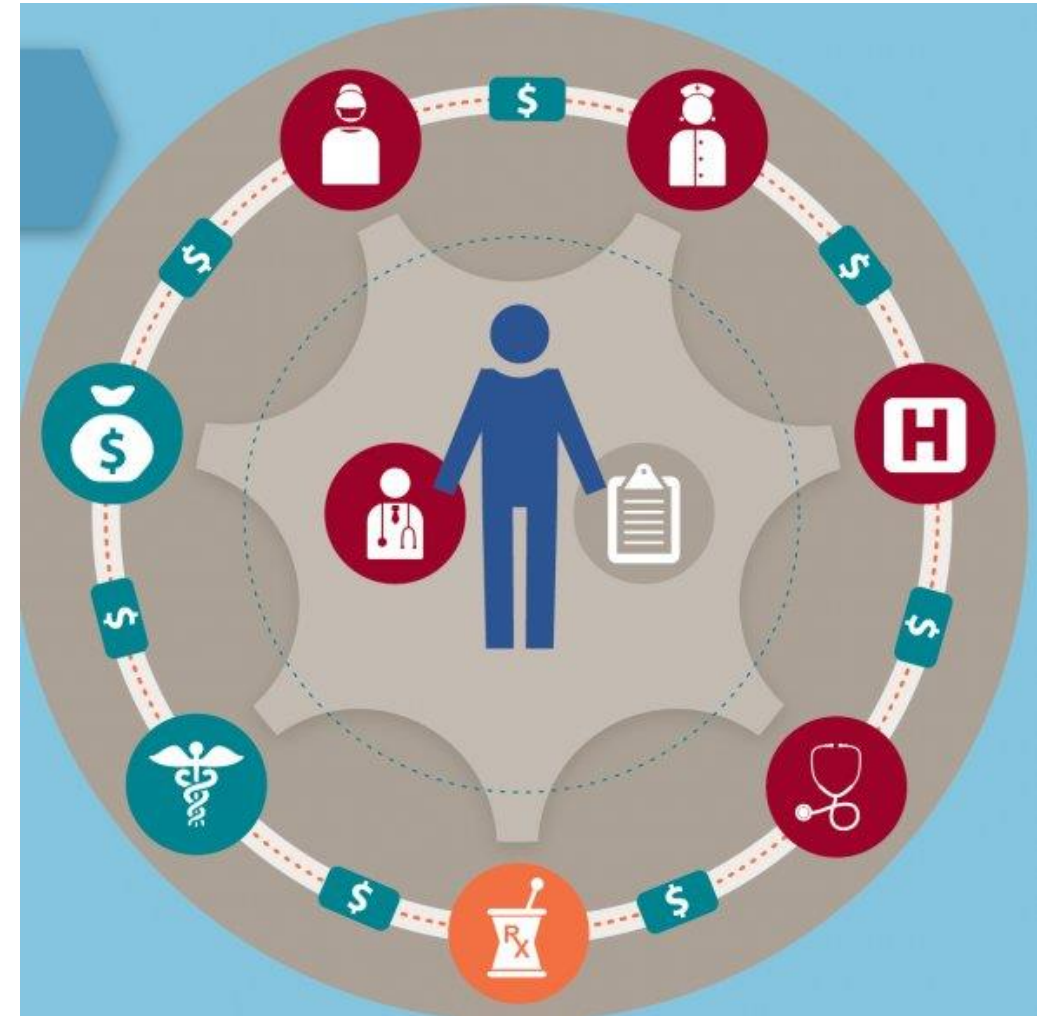
Dr. Delesha Carpenter

DPOP Divisional Director of Graduate Studies

dmcarpenter@unc.edu

The pharmacist role

- The pharmacist is a healthcare professional; the “drug experts”
- The pharmacist role has expanded to address the increasing utilization and complexity of pharmacotherapeutics
- Expansive training
 - Design and application of pharmacotherapeutics
 - Understanding of the drug development process
 - Clinical practice experience and direct patient care



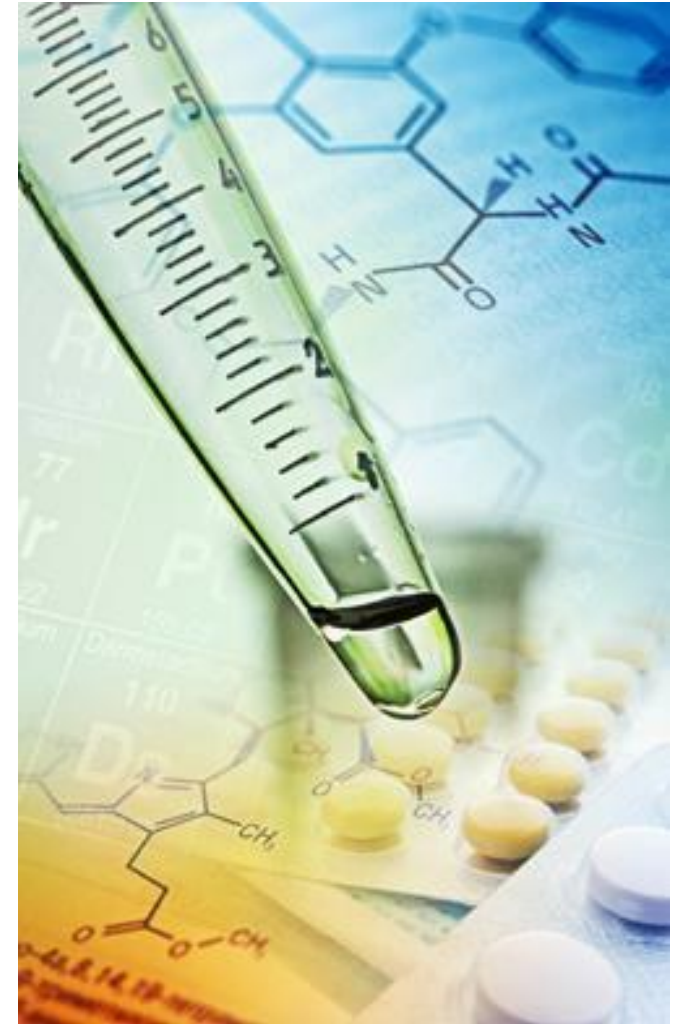
PharmD role in pharmaceutical research

- What can pharmacists contribute?
 - Rigorous background in science
 - Design and application of pharmacotherapeutics
 - Drug development process
 - Clinical practice
- Opportunities for pharmacists in pharmaceutical research are continuously increasing as we shift towards a more multi-disciplinary approach



What do pharmacist-scientists do?

- Pharmacist-scientist roles:
 - Quality assurance
 - Clinical pharmacology
 - Drug formulation
 - Manufacturing science
 - Pharmacokinetics
 - Pharmacodynamics
 - Regulatory sciences
 - ... and many more!





Industry

- Pharmaceutical companies
- Contract research organizations (CROs)

Academia

- Translational medicine
- Clinical sciences

Government

- Research and research policy (e.g., NIH, CDC)
- Regulatory agencies (e.g., FDA, CDER)

Postdoctoral training in pharmaceutical sciences

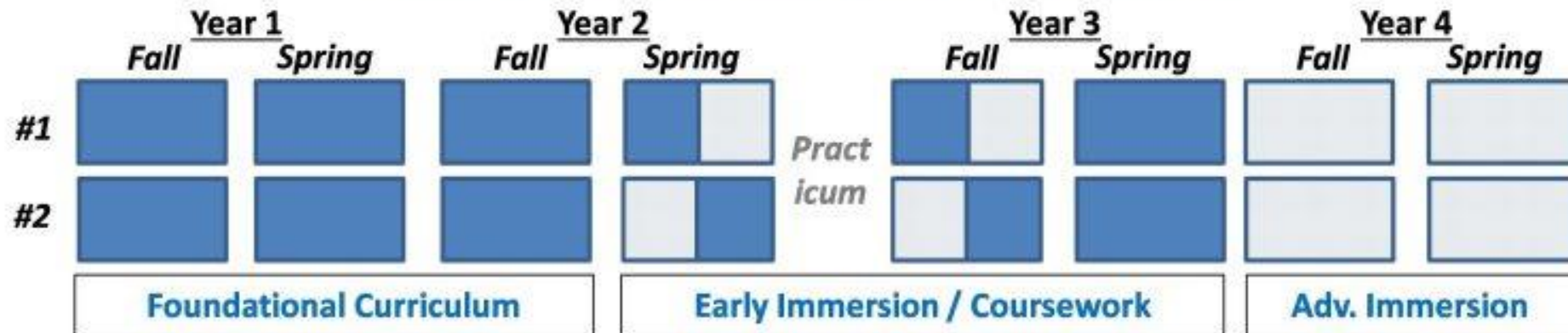
- Plan ahead if you are a PharmD student and interested in pharmaceutical research
 - Hands-on research experience is essential to landing postdoctoral training opportunities!
- Postdoctoral fellowships and residencies
 - Board certification
- Graduate degree (MS/PhD)

PharmDs at UNC

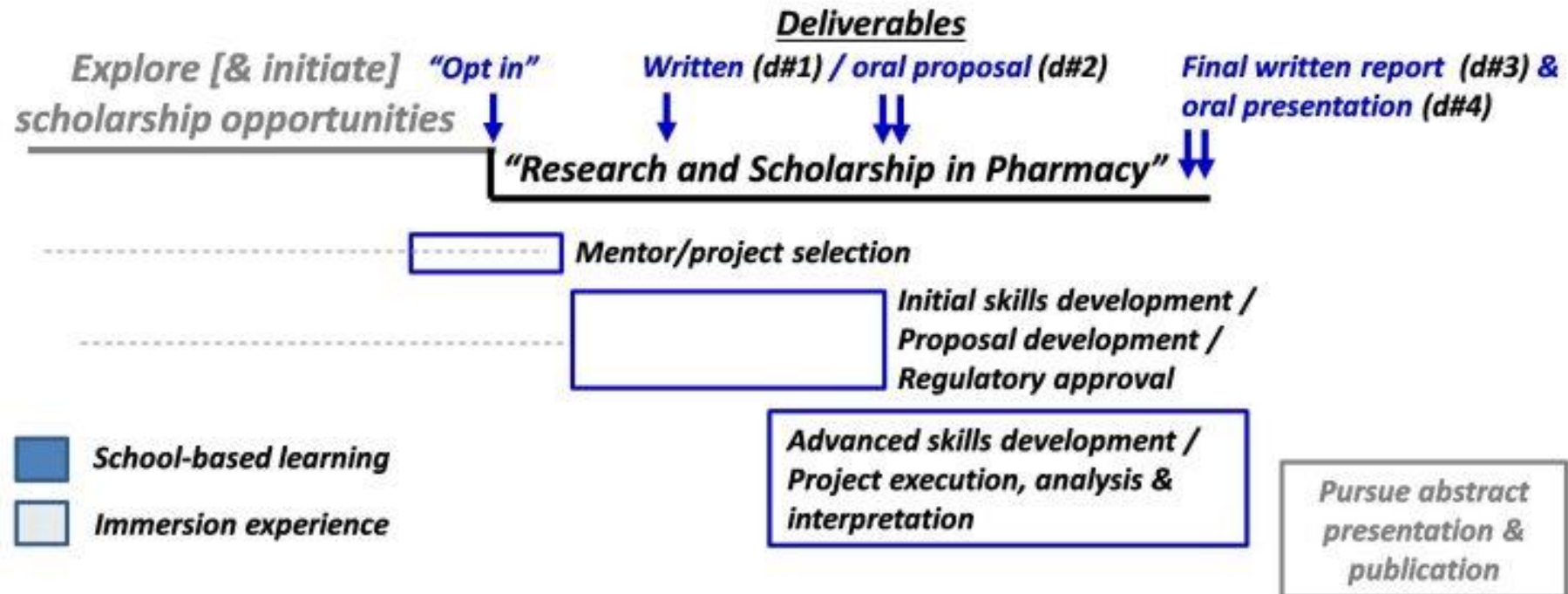
- Pharmacists play a critical role in clinical patient care and pharmaceutical research within the UNC healthcare system
- PharmD graduates are enrolled in graduate training across the four divisions (CMBC, DPMP, DPET, DPOP) in the Eshelman School of Pharmacy
- PharmD students have opportunities to conduct independent research via the Research and Scholarship in Pharmacy (RASP)

Research and Scholarship in Pharmacy

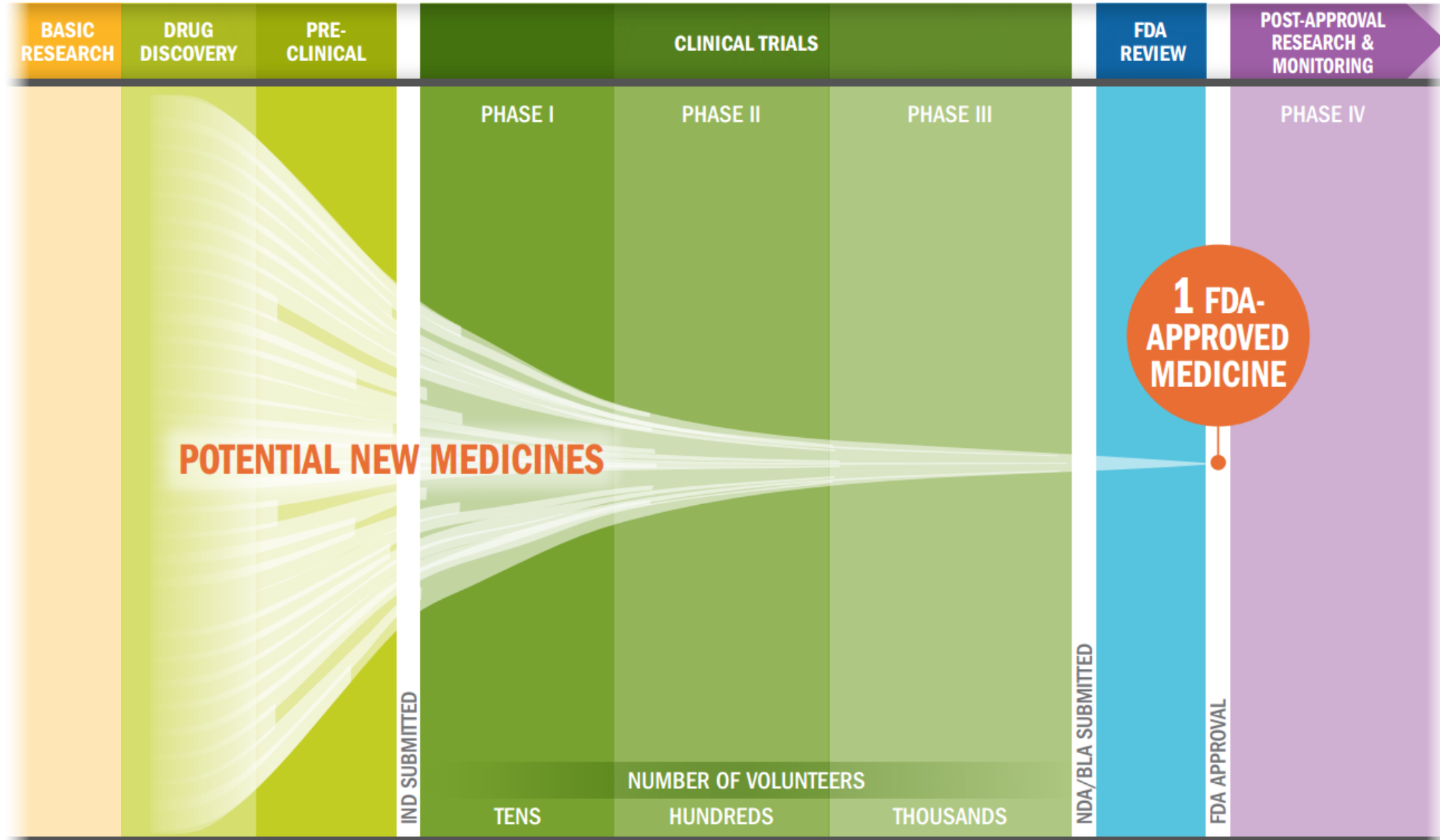
Framework and Timeline of Key Events



Research & Scholarship in Pharmacy

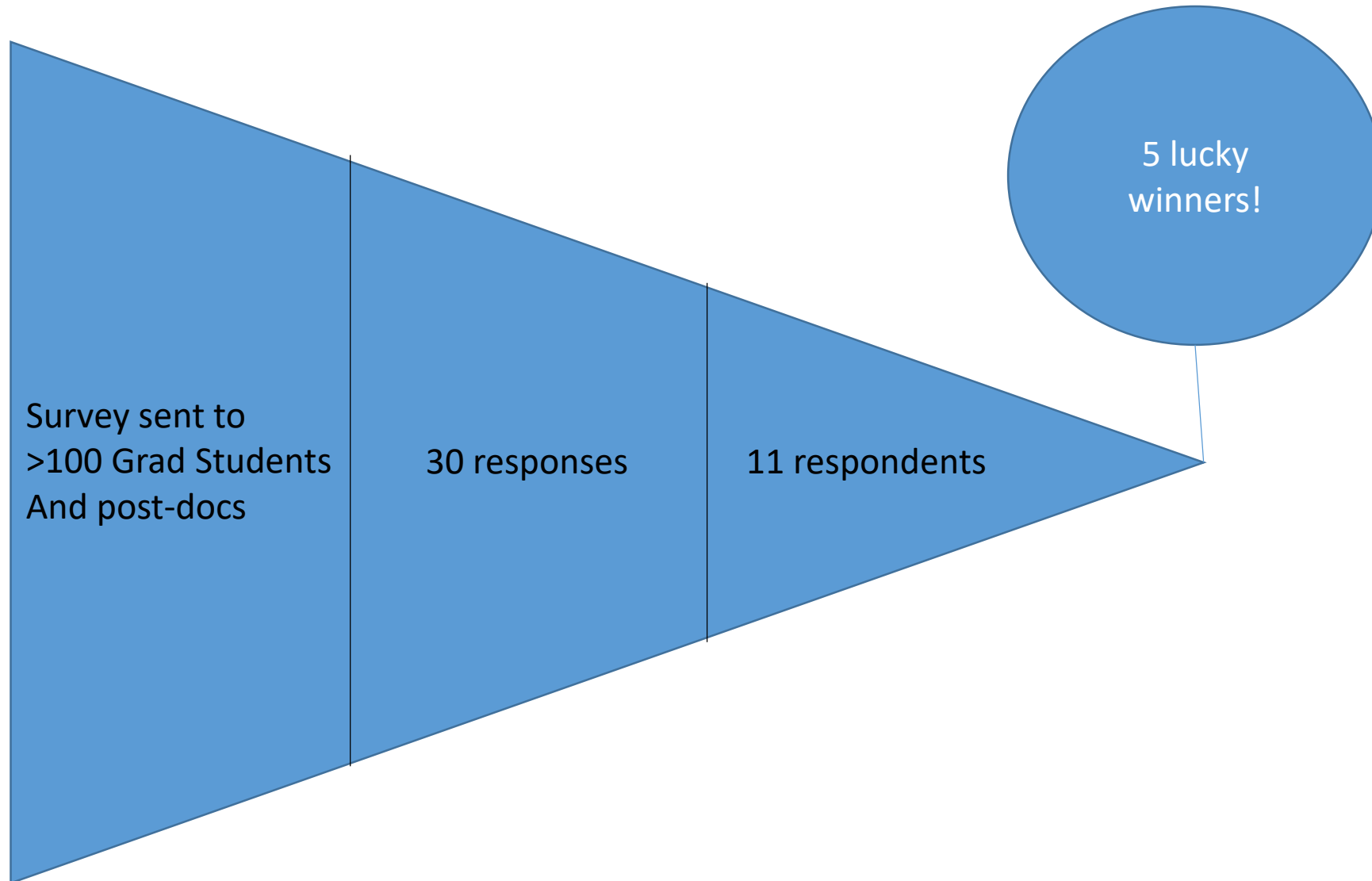


THE BIOPHARMACEUTICAL RESEARCH AND DEVELOPMENT PROCESS



Key: IND: Investigational New Drug Application, NDA: New Drug Application, BLA: Biologics License Application

Amgen Free AAPS Membership



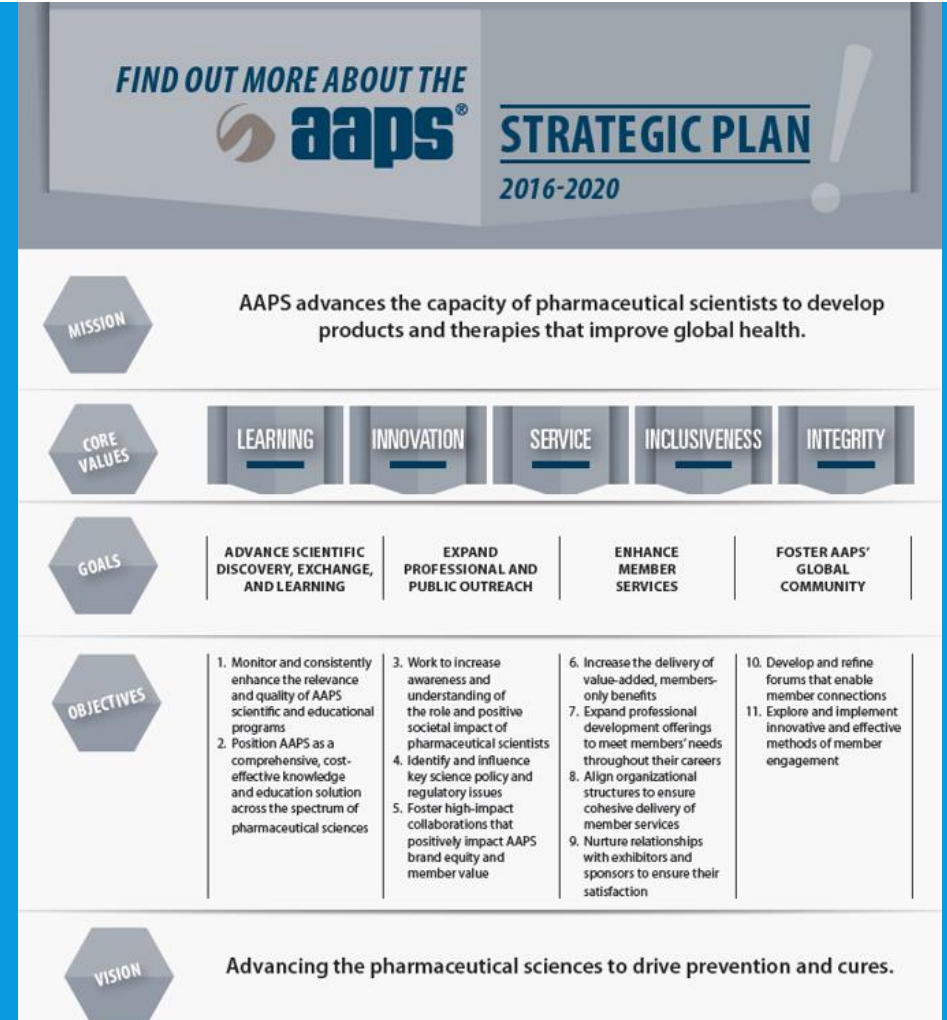
Congratulations to our new AAPS Members:

- **Jackie Gerhart**
- **Joehl Nguyen**
- **Ava Vergason**
- **Dr. Hitesh Patel**
- **Dr. Quan Jin**

The AMGEN logo is displayed in a bold, blue, sans-serif font. The letters are thick and blocky, with a consistent blue color throughout. The word "AMGEN" is centered horizontally in the lower right portion of the slide.

AAPS CORE VALUES

- Learning
- Innovation
- Service
- Inclusiveness
- Integrity



LEARNING

- What we just did!
- Invited speakers from industry
 - September event: KBI BioPharma
Durham, NC
Nate Oien
UNC Alumni
- Former Industry Faculty Panel*
- Conferences
- Webinars
- e-posters



INNOVATION

- Present our science.
- Share student achievements.
- Present at local, regional and national events.
- Pharm Sci Buddy Program



SERVICE



- Kristy Aislie STEAM event
 - Mary Scroggs Elementary
 - Science, Technology, Engineering, Arts and Math (STEAM) Night
 - AAPS Funded
- Collaborating with PharmD organizations to do outreach.
 - Med Take Back w/ SNPhA
- Support for Women in Science (WinS)
- Participate in GSO events

INCLUSIVENESS

- Would like this club to be accessible to:
 - PhD Students (**Pharm Sci**, Chemistry, Biology, Pharmacology, other)
 - PharmD Students (Other professional students?)
 - Post-docs
 - Undergraduates
 - Faculty
- Pharm Sci Open House with GSO
 - Outreach to other schools
- Promotion of other organization events that could benefit our members

E.L.I.T.E. SITE VISIT

- **WHAT:** Site Visit to [INC Research](#), Raleigh NC
- **WHEN:** Fri Sept 15, 1-4 pm
- TIBBS is collaborating with Duke and NIEHS to visit local biomedical companies as part of the ELITE (Enhancing Local Industry Transitions Through Exploration) Program. On Fri Sept 15, we will visit [INC Research](#). **Space is limited, so graduate students and postdocs must apply to attend.**
- **APPLICATION:** PhD students and postdocs may apply by emailing a 1-page cover letter Patrick_Brandt@med.unc.edu by **Tues Sept 5 at 12 noon**. Write the cover letter as if you were applying for a job or internship with the company (eg, why your experience, skills, and/or career goals make you a good fit for INC Research; why you are interested in the company; what makes you stand out as a candidate). Note that the cover letter will NOT be read by INC Research and that you are NOT applying for an actual job/internship. Instead, this is an opportunity for you to practice your cover letter writing skills - applicants will be chosen based on their fit with the company as determined by the cover letter.
- Attendees will be notified on Friday, September 8th by 5 pm. **If selected, you must also be available to attend a mandatory, short preparation meeting on Weds Sept 13 at 1 pm.**
- **[INC Research](#) at a glance:**
 - Leading, global Phase I to IV contract research organization with 6,200 employees in 50 countries
 - Headquartered in Raleigh NC with operations across six continents and experience spanning more than 100 countries
 - Named “Best Contract Research Organization” and “Top CRO to Work With” in 2015
 - [INC Research](#) Leadership Team
- *Questions? Email Patrick Brandt, Director of Career Development and Training, patrick_brandt@med.unc.edu*



INTEGRITY

- Did you know that AAPS offers year-round resume review services to AAPS members? If you are interested in arranging a consultation with an AAPS resume advisor, please send an email and your resume/CV to ResumeReview@aaps.org.
- AAPS tassels available
- Write a post for the [AAPS blog](#). Share thoughts on a timely scientific or professional development topic of interest. (300-500 words)
- Submit an article featuring your chapter for the graduate focus section of the AAPS newsmagazine (400-500 words)
- Other professional development events around RTP.
- End of the year banquet.



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